MISSISSIPPI STATE DEPARTMENT OF HEALTH

MISSISSIPPI IMMUNIZATION INFORMATION EXCHANGE HL7 Implementation Guide

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Throughout this guide, the Mississippi Immunization Information eXchange will be referred to as MIIX.

This MIIX Implementation guide is an important tool for assuring smooth communication with partners. This implementation guide contains local code values for those tables where the user will find defined values to assist with MIIX HL7 specifications. This implementation guide defines the appropriate places to document MIIX business rules that are outside of the actual standard HL7 message.

MIIX has the functionality to support VFC providers who are interested in reporting electronically. An important area addressed in this implementation guide is USAGE (Required, optional, not supported, etc…). The MIIX guide defines USAGE in the "Basic Message Construction Rules" section of Chapter 4. However, it is not acceptable to relax USAGE. The table below details what options exist for USAGE.

Possible Usage Values in MIIX Implementation guide	
R	Required
RE	Required but my be empty
C	Conditional
CE	Conditional but may be empty
O	Optional
X	Not Supported

Please read this guide in its entirety to assist you with interfacing with the MIIX registry.

1.0 Benefits of MIIX to the Provider

- Real-time electronic system eliminates lag time of viewing immunization data after reporting Reduces paperwork.
- Provides easy access to consolidated patient immunization records.
- Decreases the need to pull and re-file paper patient records.
- Consolidates immunizations from multiple providers into one record.
- Source for obtaining immunization histories for patients.
- Generates parental reminder notices on due, overdue or invalid immunizations.
- Supports efforts to improve immunization coverage rates.
- Supports the ability to recall vaccines based on manufacturer error.
- Prints a completed official Immunization Certificate of Compliance (Form 121).
- Reduces calls from schools and day care centers during registration.
- Provides vaccine inventory management.
- Generates doses administered and immunization assessment reports upon demand.
- Forecasting recommendations based on the ACIP/AAP schedule.
- Satisfies “Meaningful Use” Criteria for interfacing with existing EMR/EHRS.

2.0 Overview of IWeb Software

IWeb is a population-based immunization registry that helps public health agencies and vaccine providers make informed decisions that improve the health of children and the entire community. IWeb is a web-based product which is used by public health officials, public health employees, and private providers by enabling:

- Vaccinators to view a child’s complete vaccination record, thus preventing over and under vaccination.
- Health officials to measure and improve vaccination rates by providing a big picture through various reports.
- Health officials to send mailings to remind parents of needed vaccinations.
- School nurses to review student vaccination records.

2.1 Immunization Data Interface

The HL7 interface supports CDC standard immunization messages and is the recommended format for submitting immunization data to MIIX. Providers should have at least 250 patients with immunizations in their EMR so that adequate technical and data quality testing can be completed prior to taking an electronic interface LIVE. Providers are responsible for keeping their vaccination codes in their application current and ensure that staff members are using the appropriate vaccinations in their EMR documentation to preserve MIIX data integrity during testing and on an ongoing basis.

2.2 File Size and Data Migration

The maximum size for import files will vary depending on the provider's Internet connection speed and quality. A data set of 1000 records is recommended. If the provider's data is not part of the data migration to MIIX, then a one-time data dump of historical immunizations is required. In general 5 years of back data is requested but MIIX can take as much historical data as the provider has available. For the one time dump, MIIX will set the provider to "non-owning" so that existing data in MIIX does not change ownership. This may require several separate uploads of 1,000 records until the entire historical data set has been sent to MIIX.

2.3 De-duplication (Patient Matching)

MIIX has a very sophisticated de-duplication algorithm when runs every night. Automatic de-duplication requests that are sent during off hours are queued to run after the nightly process. Records accepted during the day will be processed during the night and will be viewable in the registry the following day.

2.4 Required and Expected Fields

Data Quality is a high priority for the immunization registry as information received is used to build a permanent vaccination record for patients. It is important that the information is accurate and as complete as possible. For this reason certain fields are required in every message (for example, patient date of birth) and other fields are expected to be sent (for example, patient phone number). Fields that is expected to be sent may be empty if there is no information to send but normally should have a value. During an initial data quality analysis and periodic checks the registry will review to ensure that expected fields are being sent as expected.

MIIX has several fields that are required. This means that files that do not include this information 100% of the time will fail to import into MIIX. Those fields required by MIIX will technically import but will not be accepted by MIIX unless the acceptance threshold is met during the testing phase.

Table 2-1 MIIX Required Field and Acceptance Thresholds

HL7 SEGMENT /FIELD LOCATION	FIELD	REQUIRED	ACCEPTANCE THRESHOLD *
	GUARDIAN FIELDS		
NK1-2	Name First	✓	100%
NK1-2	Name Last	✓	100%
NK1-2	Name Middle	Optional	

HL7 Segment /field location	Field	Required	Acceptance Threshold *
NK1-5	Phone	✓	80%
NK1-3	Relationship	✓	100%
NK1-33	Social Security Number	✓	90%
	PATIENT FIELDS		
PID-11	Address City	✓	100%
PID-11	Address County		
PID-11	Address State	✓	100%
PID-11	Address Street1	✓	100%
PID-11	Address Street2		
PID-11	Address Zip	✓	100%
PID-9	Alias First		
PID-9	Alias Last		
PID-11	Birth Country		
PID-7	Birth Date	✓	100%
PID-3	Birth File Number		
PID-24	Birth Multiple		
PID-25	Birth Order		
PID-11	Birth State		
PID-30	Deceased	✓	80%
PV1-20	Eligible VFC	✓	100%
PID-13	Email	✓	20%
PID-22	Ethnicity		
	Facility Address City		
	Facility Address State		
	Facility Address Street 1		

HL7 Segment /field location	Field	Required	Acceptance Threshold *
	Facility Address Street 2		
	Facility Address Zip		
	Facility Email		
	Facility Fax		
	Facility Phone		
	Facility Health District		
PID-8	Gender	✓	100%
PD1-3	Facility Id Remote	✓	100%
PD1-3	Facility Name	✓	100%
	Health District		
PID-16	Immunization Registry Status		
PID-16	Inactive Code		
PID-3	Medicaid Number	✓	95%
PID-6	Mother Maiden Name	✓	20%
PID-5	Name First	✓	100%
PID-5	Name Last	✓	100%
PID-5	Name Middle		
PID-5	Name Suffix		
PID-3	Patient External Id (Medical Record Number)	✓	100%
PID-3	Patient Internal Id		
PID-13	Phone		
PID-11	Physical Address Street 1		
PD1-4	Physician Bomex Number		
PD1-4	Physician Id Local	✓	100%
PD1-4	Physician Id Remote		
PD1-4	Physician Name First	✓	95%

HL7 Segment /field location	Field	Required	Acceptance Threshold *
PD1-4	Physician Name Last	✓	95%
PD1-4	Physician Name Middle		
PD1-4	Physician Name Suffix		
PD1-4	Physician SSN		
PID-15	Primary Language		
PD1-11	Publicity Code		
PID-10	Race	✓	100%
PID-10	Race 2		
PID-10	Race 3		
PID-10	Race 4		
PID-10	Race 5		
PID-3	MR, SSN, OR UNIQUE ID	✓	100%
	QUERY FIELDS		
	Father Name First	✓ (if address is not provided and mother first name is not provided)	
	Father Name Last	✓ (if address is not provided and mother last name not given)	
	Father Social Security Number		
	Mother Name First	✓	20%
	Mother Name Last	✓ (if address is not provided and father's last name not given)	
	Mother Name Maiden		
	Mother Social Security Number		
	Patient Address 1 City	✓ (if no patient guardian info)	

HL7 Segment /field location	Field	Required	Acceptance Threshold *
	Patient Address 1 State		
	Patient Address 1 Street 1		
	Patient Address 1 Zip		
	Patient Birth Date		
	Patient Id		
	Patient Medicaid Number		
	Patient Name First		
	Patient Name Id Type Code		
	Patient Name Last		
	Patient Name Middle		
	Patient Name Suffix		
	Patient Phone Number		
	Patient Social Security Number		
	Quantity Limit		
	What Subject Filter		
	When Date End		
	When Date Start		
	Patient Internal Id (SIIS ID)		
	VACCINATION FIELDS		
RXA-21	Action Code		
RXA-6	Administered Amount	✓	20%
RXA-9	Comment		
RXA-2	Dose		
RXA-11	Facility Address City		
RXA-11	Facility Address State		
RXA-11	Facility Address Street 1		
RXA-11	Facility Address Street 2		

HL7 Segment /field location	Field	Required	Acceptance Threshold *
RXA-11	Facility Address Zip		
	Facility Email		
	Facility Fax		
	Facility Id Local		
RXA-11	Facility Id Remote		
RXA-11	Facility Name		
	Facility Phone		
OBX-5	Form VIS Given Date	✓	100%
RXA-9	Historical	✓	80%
RXA-19	Indication		
	Induration TB		
RXA-10	Physician Bomex Number		
RXA-10	Physician Id Local		
RXA-10	Physician Id Remote		
RXA-10	Physician Name First		
RXA-10	Physician Name Last		
RXA-10	Physician Name Middle		
RXA-10	Physician Name Suffix		
RXA-10	Physician SSN		
OBX-3,5	Publication Date VIS 1	✓	100%
OBX-3,5	Publication Date VIS 2	✓	100%
OBX-3,5	Publication Date VIS 3	✓	100%
OBX-3,5	Publication Date VIS 4	✓	100%
RXR-1	Route	✓	20%
RXR-2	Site	✓	20%
RXA-3,5	Vaccination Date	✓	100%
RXA-5	Vaccine Code CPT	✓ If no CVX code	100%

HL7 Segment /field location	Field	Required	Acceptance Threshold *
RXA-5	Vaccine Code CVX	✓ if no CPT code	100%
	Vaccine Code PCI		
OBX-5	Vaccine Eligible VFC	✓	100%
RXA-15	Vaccine Lot Number	✓	100%
RXA-17	Vaccine Manufacturer	✓	100%
RXA-17	Vaccine Manufacturer Code	✓	100%
RXA-5	Vaccine Name	✓	100%
OBX-3	Vaccine Publicly Supplied	✓	100%

2.5 Submitting HL7 Data

HL7 message files may be uploaded manually to MIIX or automatically via HTTPS. Applications that can generate a file or use TCP/IP but can't connect via HTTPS may install the HL7 Bridge on their local server to submit directly to MIIX. If the file is automated, we request that they are sent nightly when MIIX is not generally in use. If it requires manual upload, once a week a staff member will need to generate a file from their application and upload it directly to the MIIX server. At least two people in an office should be trained to do this task so that there is no interruption of data flow to MIIX. This process takes about 5 minutes.

Request: When the sending application sends MIIX an HL7 message via an HTTPS POST command, it must have the following fields:

- USERID - Assigned by the MIIX administrator.
- PASSWORD - Assigned by the MIIX administrator.
- MESSAGEDATA - The HL7 message(s).

HL7 messages may be sent one at a time (one for every HTTPS request) or together as a batch. Batched messages do not require special separators or wrappers.

Response: MIIX always returns responses in HL7 format. Responses are returned based on how the account is configured in MIIX. The response configurations available are Always, Never, On Error (only for those messages not accepted) or Determined by Message (Incoming request message indicates in the MSH segment whether to always, never or only on error).

The HL7 response can indicate any one of the following things:

- Authentication error - username and password are incorrect or account does not have permission to accept HL7
- Message parsing error – incoming messages do not conform to HL7 standards
- Message content error – incoming message is missing or incorrect information
- Message processing exception – incoming message has an unexpected problem
- Message accepted - data has been accepted and has been sent to de-duplication
- Response to query – MIIX responds to query with query results

3.0 Actors, Goals, and Messaging Transactions

There are nine use cases defined in Chapter 2 of the CDC IG. The use cases listed in the CDC IG and supported by MIIX are:

Use Case	Goal	Supported by MIIX
Send Immunization History	To send an immunization history for an individual client from one system to another. In addition to EHR-S and IIS, other systems such as vital records systems or billing systems could use this message to send immunization histories.	Yes
Receive Immunization History	To receive an unsolicited immunization history. It may be an update or a new record.	Yes
Request Immunization History	To request an immunization history from another system.	Yes
Return Immunization History	To return an immunization history to another system.	Yes
Accept Requested History	To accept an immunization history in response to a query for an immunization history from another system.	Yes
Send Demographic Data	To send demographic data about a person. It may be an update or a new record.	Yes
Accept Demographic Data	To accept demographic data about a person. It may be an update or a new record.	Yes
Acknowledge Receipt	To acknowledge receipt of a message. This can be an immunization history, request for immunization history, demographic update, observation report or request for personal id. It may indicate success or failure. It may include error messages.	Yes
Report Error	To send error messages related to messages.	Yes

NOTE: For detailed specifics about each use case, please refer to Chapter 2 of the CDC IG.

4.0 HL7 Messaging Infrastructure

This section will contain a basic description of the terms and definitions, which are used in this document in order to understand the Health Level 7 standard as it applies to immunization information systems.

4.1 HL7 Definitions

The terms below are organized to move from the message to subsequently more granular components.

Message: A message is the entire unit of data transferred between systems in a single transmission. It is a series of segments in a sequence defined by the message specifications. These specifications are based on constraints to the HL7 specifications.

Segment: A segment is a logical grouping of data fields. Segments within a defined message may be required or optional, may occur only once, or may be allowed to repeat. Each segment is named and is identified by segment ID, a unique 3-character code.

Field: a field is a string of characters and is of a specific data type. Each field is identified by the segment it is in and its position within the segment; e.g., PID-5 is the fifth field of the PID segment. A maximum length of the field is stated as normative information. Exceeding the listed length should not be considered an error. A field is bound by the | character.

Component: A component is one of a logical grouping of items that comprise the contents of a coded or composite field. Within a field having several components, not all components are required to be valued.

Item number: Each field is assigned a unique item number. Fields that are used in more than one segment will retain their unique item number across segments.

Null and empty fields: The null value is transmitted as two double quote (“”) marks. A null-valued field differs from an empty field. An empty field should not overwrite previously entered data in the field, while the null value means that any previous value in this field should be overwritten.

Data type: A data type restricts the contents and format of the data field. Data types are given a 2- or 3-letter code. Some data types are coded or composite types with several components. The applicable data type is listed and defined in each field definition.

Code Sets/systems: Most data elements will have associated lists of acceptable values in tables supported by a standards organization such as HL7 or CDC. These code sets will include definitions to support common usage.

Delimiters: Delimiter characters are used to separate segments, fields, and components in an HL7 message. The delimiter values are given in MSH-2and used throughout the message. Applications must use agreed upon delimiters to parse the message. Messages used in this guide shall us the following delimiters:
<CR> = Segment Terminator;
| = Field Separator;
^ = Component Separator;
& = Sub-component Separator;
~ = Repetition;
\ = Escape Character
Message syntax: Each message is defined in special notation that lists the segment 3-letter identifiers in the order they will appear in the message. Braces,{}, indicate that one or more of the enclosed group of segments may repeat, and brackets,[], indicate that the enclosed group of segments is optional. Note that segments may be nested segments are units within a subgroup of segments. Their usage is relative to the parent segment in the group.
Z segments: All message types trigger event codes, and segment ID codes beginning with Z are reserved for locally defined messages. No such codes will be defined within the HL7 Standard.

4.2 Basic Message Construction Rules

4.2.1 Encoding Rules for Sending

1. Encode each segment in the order specified in the abstract message format.
2. Place the Segment ID first in the segment.
3. Precede each date field with the field separator
4. Encode the data fields in the order and data type specified in the segment definition table.
5. End each data field with the field separator.
6. Components, subcomponents, or repetitions that are not valued at the end of a field need not be represented by component separators.
7. Components, subcomponents, or repetitions that are not valued, but precede components, subcomponents, or repetitions that are valued must be represented by appropriate separators.
8. If a field allows for repetition (cardinality maximum > 1), then the length of the field applies to EACH repetition.

4.2.2 Encoding Rules for Receiving

1. If a data segment that is expected is not included, treat it as if all data fields within were not present.
2. If a data segment is included that is not expected, ignore it; this is not an error.
3. If data fields are found at the end of a data segment that are not expected, ignore them; this is not an error.

4.2.3 Implications of the Encoding Rules

The following table lists the expected outcome implied by the encoding rules above.

Table 4-1 Expected Outcomes

Condition	Immediate Outcome	Secondary Outcome
Required segment not present.	Message rejected.	Error message returned to sending system.
Segments not in correct order.	Out of sequence segment ignored.	If this segment is required, then message rejected.
Segment not expected.	Segment is ignored.	
Non-representing segment is repeated.	Repeated segment is ignored. First segment is processed normally.	Information in the repeated segment is lost to receiving system.
Required segment has required fields that are not present or rejected due to errors.	Message is rejected.	Error message returned to sending system.
Optional segment has required field that is not present or rejected due to errors.	Segment is ignored.	Message is not rejected because of this error. Error message returned.
Required field is not present.	Segment is ignored or rejected.	If segment is required, then message is rejected. If segment is not required, the information in the segment is lost to receiving system.
Required field is rejected due to errors.	Segment is ignored or rejected.	I If segment is required, then message is rejected. If segment is not required, the information in the segment is lost to receiving system
Incoming data value is not in the list of expected values for a field that is constrained to a list of values.	Incoming data are treated as empty.	

Note that all errors in processing a message should be communicated back to the sending system unless the initiating system has indicated that no response is desired.

4.2.4 Determining Usage of Segments, Fields, and Components

Many fields and segments in HL7 are optional. This guide constrains on some fields to support functionality required from meaningful use of immunization data. The following list the rules applied to the decisions used to determine usage in this Guide. Any segment, field, or component that is required by HL7 standard is required.

Table 4-2 Usages Codes

Usage Code	Interpretation	Comment
R	Required	A conforming sending application shall populate all “R” elements with non-empty values. Conforming receiving application shall process or ignore the information conveyed by required elements. A conforming receiving application must not raise an error due to the presence of a required element, but may raise an error due to the absence of a required element.
RE	Required but may be empty.	The element may be missing from the message, but must be sent by the sending application if there is relevant data. A conforming sending application must be capable of providing all “RE” elements. If the conforming sending application knows the required values for the element, then it must send that element. If the conforming sending application does not know the required values, then the element will be omitted. Receiving applications will be expected to process or ignore data contained in the element, but must be able to successfully process the message if the element is omitted (no error message should be generated because the element is missing).

Usage Code	Interpretation	Comment
CE	Conditional but may be empty	This usage has an associated condition predicate. This predicate is an attribute within the message. **If the predicate is satisfied**: If the conforming sending application knows the required values for the element, then the application must send the element. If the conforming sending application does not know the values required for this element, then the element shall be omitted. The conforming sending application must be capable of knowing the element (when the predicate is true) for all "CE" elements. If the element is present, the conformant receiving application shall process or ignore the values of that element. If the element is not present, the conformant receiving application shall not raise an error due to the presence or absence of the element. **If the predicate is not satisfied**: The conformant sending application shall not populate the element. The conformant receiving application may raise an application error if the element is present.
C	Conditional	This usage has an associated condition predicate. This predicate is an attribute within the message. If the predicate is satisfied: A conformant sending application must always send then element. A conformant receiving application must process or ignore data in the element. It may raise an error if the element is not present. **If the predicate is NOT satisfied**: A conformant sending application must NOT send the element. A conformant receiving application must NOT raise an error if the condition predicate is false and the element is not present, though it may raise an error if the element IS present.

Usage Code	Interpretation	Comment
O	Optional	This element may be present if specified in local profile. Local partners may develop profiles that support use of this element. In the absence of a profile, conformant sending application will not send the element. Conformant receiving applications will ignore the element if it is sent, unless local profile specifies otherwise. Conformant receiving applications my not raise an error if it receives an unexpected optional element.
X	Not Supported	The element is not supported. Sending applications should not send this element. Receiving applications should ignore this element if present. A receiving application may raise an error if it receives an unsupported element. Any profile based on this guide should not specify use of an element that is not supported in this guide.

5.0 HL7 Data Types

The CDC IG contains clearly defined HL7 data types that are the building blocks of an HL7 message. Similar to the terms and definitions found in the HL7 Messaging Infrastructure section above, this guide will avoid potentially ambiguous situations and not attempt to redefine an already clearly defined section. This guide will adhere to Chapter 4 of the CDC IG.

In addition, the CDC 2.3.1 IG contains definitions of relevant HL7 data types supported in messages of the same version for backward compatibility. Where there are irreconcilable differences, a configuration option in the HL7 Upload Settings page for an incoming account is commonly supplied.

6.0 Segments and Message Details

This chapter will contain specifications for each segment used. It will indicate which fields are supported or required and describe any constraints on these fields.

Table 6-1 Message Segments

Segment (Name/Role)	Definition	Message Usage	Usage	Note
BHS (Batch Header Segment)	The Batch Header Segment wraps a group of 1 or more messages. These may be a mixture of acceptable message types. This segment is not required for real-time messaging. That is, a stream of messages may be sent without a BHS. A system may choose to require BHS for all groups of messages, but should specify this requirement in a local implementation Guide.	Any	Optional	Used at the beginning of any batch of messages.
BTS (Batch Trailer Segment)	The BTS segment defines the end of a batch. It is required if the message has a matching BHS.	Any	Required if message starts with BHS.	Used to mark the end of any batch of messages. If the batch of messages starts with a BHS, then this segment is required.
ERR (Error Segment)	The error segment reports information about errors in processing the message. The segment may repeat. Each error will have its own ERR segment.	ACK, RSP	Ability to create and process is required for conformant systems.	Used to return information about errors.
FHS (File Header Segment)	The file header segment may be used to group one or more batches of messages. This is a purely optional segment, even if batches are sent. Its' use is not anticipated for use in real-time transactions. Any system that anticipates its use should specify this in a local implementation Guide.	Any	Optional	Used to mark the beginning of a file of batches.

Segment (Name/Role)	Definition	Message Usage	Usage	Note
FTS (File Trailer Segment)	The FTS segment defines the end of a file of batches. It is only used when the FHS segment is used.	Any	Required to terminate a file of batches. (Matches FHS)	Used to mark the end of a file of batches. If a file of batches has an FHS at the beginning, then this segment is required.
IN1 & 3 (Insurance Segment)	The IN1 & IN3 segments contain insurance policy coverage information necessary to produce properly prorated patient and insurance bills.	VXU	Optional	This segment is not anticipated for use in immunization messages, but may be specified for local use.
MSA (Message Acknowled gement Segment)	This segment is included in the query response (RSP) and acknowledgment (ACK) messages. It contains information used to identify the receiver's acknowledgement response to an identified prior message.	RSP, ACK	Ability to create and process is required for conformant systems.	
MSH (Message Segment Header)	The MSH segment defines the intent, source, destination, and some specifics of the syntax of a message.	All	Ability to create and process is required for conformant systems.	This begins every message and includes information about the type of message, how to process it and who it was created by.
NK1 (Next of Kin Segment)	The NK1 segment contains information about the patient's next of kin or other related parties. Any associated parties may be identified.	VXU, ADT, RSP	Ability to create and process is required for conformant systems.	Used to carry information about the next of kin for a client.
NTE (Note Segment)	The NTE segment is used for sending notes and comments. It is used in relation to OBX in the VXU and RSP.	VXU, ADT, RSP	Ability to create and process is required for conformant systems.	Used to carry a note related to the parent segment.

Segment (Name/Role)	Definition	Message Usage	Usage	Note
OBX (Observation Result Segment)	The observation result segment has many uses. It carries observations about the object of its parent segment. In the VXU/RSP it is associated with the RXA or immunization record. The basic format is a question and an answer.	ADT, VXU, RSP	Ability to create and process is required for conformant systems.	Used to report one atomic part of an observation.
ORC (Order Request Segment)	The Common Order segment (ORC) is used to transmit fields that are common to all orders (all types of services that are requested). While not all immunizations recorded in an immunization message are able to be associated with an order, each RXA must be associated with one ORC, based on HL7 2.5.1 standard.	VXU, RSP	Ability to create and process is required for conformant systems.	Used to give information about a group of one or more orders (typically RXA).
PD1 (Patient Demographic Segment)	The patient additional demographic segment contains demographic information that is likely to change about the patient. In immunization messages, this is information about the need to protect the client's information, how they should be part of reminder efforts and their current status in the IIS.	VXU, RSP, ADT	Ability to create and process is required for conformant systems.	Used to give information about a patient. A primary use in immunization messages is to give information about privacy and whether contact is allowed.

Segment (Name/Role)	Definition	Message Usage	Usage	Note
PID (Patient Identifier Segment)	This segment contains permanent patient identifying and demographic information that, for the most part, is not likely to change. Used by all applications as the primary means of communicating patient identification information frequently.	VXU, ADT, RSP	Ability to create and process is required for conformant systems.	Used to carry information about the patient or client.
PV1 (Patient Visit Segment)	This segment contains information related to a specific visit.	VXU, ADT, RSP	Ability to create and process is required for conformant systems.	Used to carry information about a given visit. Used in immunization messages to carry information about client eligibility for various
QAK (Query Acknowledgement Segment)	The QAK segment contains information sent with responses to a query.	RSP	Ability to create and process is required for conformant systems.	
QPD	Query parameter definition	QBP, RSP	Ability to create and process is required for conformant systems.	
RCP	Response control parameter segment	QBP	Ability to create and process is required for conformant systems.	
RXA	Pharmacy/Treatment Administration Segment	VXU, RSP	Ability to create and process is required for conformant systems.	

Segment (Name/Role)	Definition	Message Usage	Usage	Note
RXR	Pharmacy/Treatment Route Segment	VXU, RSP	Ability to create and process is required for conformant systems.	

6.1 Batch Header Segment (BHS) – NOT SUPPORTED IN MIIX

6.2 Batch Trailer Segment (BTS) – NOT SUPPORTED IN MIIX

6.3 Error Segment (ERR)

Note that the ERR – 1 field is not supported in Version 2.5.1. It may continue to be used for versions 2.4 and earlier as specified in the earlier Implementation Guide. It is the ONLY field that will be included in an ERR segment if the MSH indicates that the message with the error was a version prior to 2.5.

SEQ	LEN	Data Type	CDC IG Cardinality	*MIIX* Cardinality	Value Set	ELEMENT NAME	CDC IG Usage	*MIIX* Usage	Constraint
1		ELD	[0..0]	[0..*]		Error Code and Location	X	B	Not supported for Version 2.5 and above. Backwards compatible 2.3.1
2	18	ERL	[0..1]	[0..1]		Error Location	RE	RE	If an error involves the entire message (e.g. the message is not parse-able.) then location has no meaning. In this case, the field is left empty.
3		CWE	[1..1]	[0..1]	0357	HL7 Error Code	R	R	This field is ignored for 2.3.1 messages
4	2	ID	[1..1]	[0..1]	0516	Severity	R	R	This field is ignored for 2.3.1 messages
5		CWE	[0..1]	[0..1]	0533	Application Error Code	O	O	
6	80	ST	[0..1]	[0..1]		Application Error Parameter	O	O	
7	2048	TX	[0..1]	[0..1]		Diagnostic Information	O	O	Ignored

SEQ	LEN	Data Type	CDC IG Cardinality	*MIIX* Cardinality	Value Set	ELEMENT NAME	CDC IG Usage	*MIIX* Usage	Constraint
8	250	TX	[0..1]	[0..1]		User Message	O	O	This field may contain free text that may be displayed to a user. It is not intended for any further processing.
9	20	IS	[0..1]	[0..1]	0517	Inform Person Indicator	O	O	Ignored
10		CWE	[0..1]	[0..1]	0518	Override Type	O	O	Ignored
11		CWE	[0..1]	[0..1]	0519	Override Reason Code	O	O	Ignored
12		XTN	[0..1]	[0..1]		Help Desk Contact Point	O	O	Ignored

ERR field definitions:

Note: ERR-1 is not supported for use in messages starting with version 2.5.

ERR-2 Error Location (ERL) 01812

Definition: Identifies the location in a message related to the identified error, warning or message. Each error will have an ERR, so no repeats are allowed on this field. This field may be left empty if location is not meaningful. For example, if is unidentifiable, an ERR to that effect may be returned.

ERR-3 HL7 Error Code (CWE) 01813

Definition: Identifies the HL7 (communications) error code. Refer to HL7 Table 0357 – Message Error Condition Codes for valid values.

ERR-4 Severity (ID) 01814

Definition: Identifies the severity of an application error. Knowing if something is Error, Warning or Information is intrinsic to how an application handles the content. Refer to HL7 Table 0516 - Error severity for valid values. If ERR-3 has a value of "0", ERR-4 will have a value of "I".

ERR-5 Application Error Code (CWE) 01815

Definition: Application specific code identifying the specific error that occurred. Refer to User-Defined Table 0533 – Application Error Code for suggested values.

If the message associated with the code has parameters, it is recommended that the message be indicated in the format of the java .text.MessageFormat approach. This style provides information on the parameter type to allow numbers, dates and times to be formatted appropriately for the language.

ERR-6 Application Error Parameter (ST) 01816

Definition: Additional information to be used, together with the Application Error Code, to understand a particular error condition/warning/etc. This field can repeat to allow for up to 10 parameters.

ERR-8 User Message (TX) 01818

Definition: The text message to be displayed to the application user. It is not intended to be processed further by the receiving system.

Example with error in PID:

ERR||PID^1^5|101^Required field missing^HL70357^^^|E|

6.4 Event Type Segment (EVN)

Table 6-3 Event Type Segment (EVN)

SEQ	LEN	Data Type	CDC IG Cardinality	*MIIX* Cardinality	Value set	ELEMENT NAME	CDC IG Usage	MIIX Usage	Comment
1	3	ID	[0.. 1]		0003	Event Type Code	O	O	Ignored
2		TS	[1..1]			Recorded Date/Time	R	R	
3		TS	[0..1]			Date/Time Planned Event	O	O	
4	3	IS	[0..1]		0062	Event Reason Code	O	O	
5		XCN	[0..*]		0188	Operator ID	O	O	
6		TS	[0..1]			Event Occurred	O	O	
7		HD	[0..1]			Event Facility	O	O	Ignored

EVN field definitions

EVN-2 Recorded Date/Time (TS) 00100

Definition*:* Most systems will default to the system date/time when the transaction was entered, but they should also permit an override.

6.5 File Header Segment (FHS) – NOT SUPPORTED BY MIIX

6.6 File Trailer Segment (FTS) – NOT SUPPORTED BY MIIX

6.7 IN1—Insurance Segment (IN2, IN3) – NOT SUPPORTED BY MIIX

6.8 Message Acknowledgement Segment (MSA)

Table 6-4 Message Acknowledgement Segment (MSA)

SEQ	LEN	Data Type	CDC IG Cardinality	*MIIX* Cardinality	Value Set	ELEMENT NAME	CDC IG Usage	*MIIX* Usage	Comment
1	2	ID	[1..1]	[1..1]	0008	Acknowledgment Code	R	R	
2	20	ST	[1..1]	[1..1]		Message Control ID	R	R	
3	80	ST	[0..1]	[0..1]		Text Message	O	O	
4	15	NM	[0..1]	[0..1]		Expected Sequence Number	O	O	Ignored
5	1	ID	[0..1]	[0..1]		Delayed Acknowledgment Type	O	O	Ignored
6	100	CE	[0..0]	[0..1]	0357	Error Condition	X	B	

MSA Field Definitions

MSA-1 Acknowledgment Code (ID) 00018

Definition: This field contains an acknowledgment code. See message processing rules. Refer to HL7 Table 0008 - Acknowledgment code for valid values.

MSA-2 Message Control ID (ST) 00010

Definition: This field contains the message control ID of the message sent by the sending system. It allows the sending system to associate this response with the message for which it is intended. This field echoes the message control id sent in MSH-10 by the initiating system.

6.9 Message Header Segment (MSH)

Table 6-5 Message Header Segment (MSH)

Seq	Len	Data Type	Cardinality	Value set	Item	Element Name	Usage	Constraint
1	1	ST	[1..1]		00001	Field Separator	R	The MSH.1 field shall be |
2	4	ST	[1..1]		00002	Encoding Characters	R	The MSH.2 field shall be ^~\&
3		HD	[0..1]	0361	00003	Sending	RE	No constraint
4		HD	[0..1]	0362	00004	Sending Facility	R	ID Number issued by MIIX
5		HD	[0..1]	0361	00005	Receiving Application	RE	No constraint
6		HD	[0..1]	0362	00006	Receiving	RE	No constraint
7		TS	[1..1]		00007	Date/Time Of Message	R	The degree of precision must be at least to the minute, and the time zone must be included (format YYYYMMDDHHMM[SS[.S[S[S[S]]]]]+/-
9	15	MSG	[1..1]		00009	Message Type	R	
10	20	ST	[1..1]		00010	Message Control	R	
11	3	PT	[1..1]		00011	Processing ID	R	
12		VID	[1..1]		00012	Version ID	R	2.1, 2.2, 2.3,2.3.1, 2.4,2.5.1

MSH Field Definitions

MSH-1 Field Separator (ST) 00001

Definition: This field contains the separator between the segment ID and the first real field, MSH-2-encoding characters. As such it serves as the separator and defines the character to be used as a separator for the rest of the message. Required value is |, (ASCII 124).

Example:

MSH|

MSH-2 Encoding Characters (ST) 00002

Definition: This field contains the four characters in the following order: the component separator, repetition separator, escape character, and subcomponent separator. Required values are ^~\& (ASCII 94, 126, 92, and 38, respectively).

MSH-3 Sending Application (HD) 00003

Definition: This field uniquely identifies the sending application. In the case of an IIS, it will be found in the list of IIS applications in Appendix A, User-defined table 0300. This is not the product, but rather the name of the specific instance. For instance, the IIS in Georgia (GRITS) is an instance based on the Wisconsin IIS (WIR). The code for GRITS would be specific to GRITS. Additional locally defined codes may be added to accommodate local needs. The first component shall be the name space id found in User-defined Table 0300, including local additions to this table. The second and third components are reserved for use of OIDs.

MSH-4 Sending Facility (HD) 00004

Definition: This field identifies the organization responsible for the operations of the sending application. Locally defined codes may be added to accommodate local needs. The first component shall be the name space id found in

User-defined Table 0300. The second and third components are reserved for use of OIDs or other universal identifiers.

MSH-5 Receiving Application (HD) 00005

Definition: This field uniquely identifies the receiving application. In the case of an IIS, it will be found in the list of IIS applications in Appendix A, User-defined table 0300. This is not the product, but rather the name of the specific instance. For instance, the IIS in Georgia (GRITS) is an instance based on the Wisconsin IIS (WIR). The code for GRITS would be specific to GRITS. Additional locally defined codes may be added to accommodate local needs. The first component shall be the name space id found in User-defined Table 0300. The second and third components are reserved for use of OIDs.

MSH-6 Receiving Facility (HD) 00006

Definition: This field identifies the organization responsible for the operations of the receiving application. Locally defined codes may be added to accommodate local needs. The first component shall be the name space id found in User-defined Table 0300. The second and third components are reserved for use of OIDs.

MSH-7 Date/Time of Message (TS) 00007

Definition: This field contains the date/time that the sending system created the message. The degree of precision must be at least to the minute. The time zone must be specified and will be used throughout the message as the default time zone.

Note: This field was made required in version 2.4. Messages with versions prior to 2.4 are not required to value this field. This usage supports backward compatibility.

MSH-9 Message Type (MSG) 00009

Definition: This field contains the message type, trigger event, and the message structure ID for the message. Refer to HL7 Table 0076 - Message type for valid values for the message type code. This table contains values such as ACK, ADT, VXU, ORU etc. The following table lists those anticipated to be used by IIS.

Table 6-6 Message Types

Transaction	Message type
Unsolicited update of immunization record	VXU
Unsolicited update of demographic data	ADT
Query to another system	QBP
Response to query	RSP

6.10 Next of Kin Segment (NK1)

Table 6-7 4 Next of Kin Segment (NK1)

Seq	Len	Data Type	Cardinality	Value set	Item#	Element Name	Usage	Constraint
1	4	SI	[1..1]		00190	Set ID - NK1	R	
2		XPN	[1..*]		00191	Name	R	The first instance is the legal name and is required.
3		CE	[1..1]	0063	00192	Relationship	R	Must be MTH (Mother), FTH (Father), or GRD (Guardian)
4		XAD	[0..*]		00193	Address	RE	The first instance shall be the primary address.
5		XTN	[0..*]		00194	Phone Number	RE	The first instance shall be the primary phone number.

NK1 Field Definitions

NK1-1 Set ID - NK1 (SI) 00190

Definition: This field contains the number that identifies this transaction. For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc.

NK1-2 Name (XPN) 00191

Definition: This field contains the name of the next of kin or associated party. Multiple names for the same person are allowed, but the legal name must be sent in the first sequence. Refer to HL7 Table 0200 - Name Type for valid values.

NK1-3 Relationship (CE) 00192

Definition: This field contains the actual personal relationship that the next of kin/associated party has to the patient. Refer to User-defined Table 0063 - Relationship for suggested values.

NK1-4 Address (XAD) 00193

Definition: This field contains the address of the next of kin/associated party. Multiple addresses are allowed for the same person. The mailing address must be sent in the first sequence. If the mailing address is not sent, then the repeat delimiter must be sent in the first sequence.

NK1-5 Phone Number (XTN) 00194

Definition: This field contains the telephone number of the next of kin/associated party. Multiple phone numbers are allowed for the same person. The primary telephone number must be sent in the first sequence. If the primary telephone number is not sent, then the repeat delimiter must be sent in the first sequence. Refer to HL7 Table 0201 - Telecommunication Use Code and HL7 Table 0202 - Telecommunication Equipment Type for valid values.

NK1-6 Business Phone Number (XTN) 00195

Definition: This field contains the business telephone number of the next of kin/associated party. Multiple phone numbers are allowed for the same person. The primary business telephone number must be sent in the first sequence. If the primary telephone number is not sent, then the repeat delimiter must be sent in the first sequence.

Refer to HL7 Table 0201 - Telecommunication Use Code and HL7 Table 0202 - Telecommunication Equipment Type for valid values.

NK1-15 Administrative Sex (IS) 00111

Definition: This is the sex of the next of kin.

NK1-16 Date/Time of Birth (TS) 00110

Definition: This is the data of birth of the next of kin.

6.11 Observation Results Segment (OBX)

The observation result segment has many uses. It carries observations about the object of its parent segment. In the VXU/RSP it is associated with the RXA or immunization record. The basic format is a question (OBX-3) and an answer (OBX-5).

Table 6-8 Observation Segment (OBX)

SEQ	LEN	Data Type	CDC IG Cardinality	*MIIX* Cardinality	Value Sets	ELEMENT NAME	CDC IG Usage	*MIIX* Usage	Comment
1	4	SI	[1..1]	[1..1]		Set ID – OBX	R	R	
2	2	ID	[1..1]	[1..1]	0125	Value Type	R	R	CE, NM, ST, DT, or TS
3		CE	[1..1]	[1..1]		Observation Identifier	R	R	This indicates what this observation refers to. It poses the question that is answered by OBX-5.
4	20	ST	[1..1]	[1..1]		Observation Sub-ID	RE	RE	Not implemented yet
5		var[1]	[1..1]	[1..1]		Observation Value	R	R	This is the observation value and answers the question posed by OBX-3
6		CE	[0..1]	[0..1]		Units	CE	CE	If the observation in OBX-5 requires an indication of the units, they are placed here.
7	60	ST	[0..1]	[0..1]		References Range	O	O	

1

The length of the observation field is variable, depending upon value type. See *OBX-2 value type*.

SEQ	LEN	Data Type	CDC IG Cardinality	*MIIX* Cardinality	Value Sets	ELEMENT NAME	CDC IG Usage	*MIIX* Usage	Comment
8	5	IS	[0..1]	[0..1]	0078	Abnormal Flags	O	O	
9	5	NM	[0..1]	[0..0]		Probability	O	O	Ignored
10	2	ID	[0..1]	[0..0]	0080	Nature of Abnormal Test	O	O	Ignored
11	1	ID	[1..1]	[1..1]	0085	Observation Result Status	R	R	Constrain to F
12		TS	[0..1]	[0..0]		Effective Date of Reference Range Values	O	O	Ignored
13	20	ST	[0..1]	[0..0]		User Defined Access Checks	O	O	Ignored
14		TS	[1..1]	[1..1]		Date/Time of the Observation	R	R	
15		CE	[0..1]	[0..1]		Producer's Reference	O	O	
16		XCN	[0..1]	[0..0]		Responsible Observer	O	O	Ignored
17		CE	[0..1]	[0..0]		Observation Method	O	O	Ignored
18		EI	[0..1]	[0..0]		Equipment Instance Identifier	O	O	Ignored

SEQ	LEN	Data Type	CDC IG Cardinality	*MIIX* Cardinality	Value Sets	ELEMENT NAME	CDC IG Usage	*MIIX* Usage	Comment
19		TS	[0..1]	[0..0]		Date/Time of the Analysis	O	O	Ignored
20			[0..1]	[0..0]		Reserved for harmonization with V2.6	O	O	Ignored
21			[0..1]	[0..0]		Reserved for harmonization with V2.6	O	O	Ignored
22			[0..1]	[0..0]		Reserved for harmonization with V2.6	O	O	Ignored
23		XON	[0..1]	[0..0]		Performing Organization Name	O	O	Ignored
24		XAD	[0..1]	[0..0]		Performing Organization Address	O	O	Ignored
25		XCN	[0..1]	[0..0]		Performing Organization Medical Director	O	O	Ignored

OBX Field Definitions

OBX-1 Set ID - OBX (SI) 00569

Definition: This field contains the sequence number. The first instance shall be set to 1 and each subsequent instance shall be the next number in sequence.

OBX-2 Value Type (ID) 00570

Definition: This field contains the format of the observation value in OBX. If the value is CE then the result must be a coded entry.

OBX-3 Observation Identifier (CE) 00571

Definition: This field contains a unique identifier for the observation. The format is that of the Coded Element (CE). Example: |30963-3^Vaccine purchased with^LN|.

In most systems the identifier will **point** to a master observation table that will provide other attributes of the observation that may be used by the receiving system to process the observations it receives. This may be thought of as a question that the observation answers. In the example above, the question is “how was this immunization paid for” The answer in OBX-5 could be “Public Funding”.

The 2.3.1 Implementation Guide used suffixes on the first sequence in OBX-3 to group related observations. For instance, reporting a VIS publication date and VIS receipt date each added a suffix of one LOINC code to a second LOINC code when recording VIS dates for a component vaccine. (38890-0&29768-9^DATE VACCINE INFORMATION STATEMENT PUBLISHED^LN) This is no longer acceptable. Grouping of related observations will be accomplished using Observation sub-id (OBX-4).

OBX-4 Observation Sub-ID (ST) 00572

Definition: This field is used to group related observations by setting the value to the same number. For example, recording VIS date and VIS receipt date for a combination vaccination requires 6 OBX segments. One OBX would indicate the vaccine group. It would have a pair of OBX indicating the VIS publication date and the VIS receipt date.

These would have the same OBX-4 value to allow them to be linked. The second set of three would have another OBX-4 value common to each of them.

This field may be used to link related components of an observation. Each component of the observation would share an Observation sub-id.

For example:

OBX|1|LN|^observation 1 part 1^^^^^|1|…

OBX|2|LN|^ observation 1 part 2^^^^^|1|…

OBX|3|DT|^a different observation^^^^^|2|…

Example:

OBX|1|CE|38890-0^COMPONENT VACCINE TYPE^LN|1|45^HEP B, NOS^CVX|||||F|<CR>

OBX|2|TS|29768-9^DATE VACCINE INFORMATION STATEMENT PUBLISHED^LN|1|20010711|||||F|<CR>

OBX|3|TS|29769-7^DATE VACCINE INFORMATION STATEMENT PRESENTED^LN|1|19901207|||||F|<CR>

OBX|4|CE|38890-0^COMPONENT VACCINE TYPE^LN|2|17^HIB,NOS^CVX|||||F|<CR>

OBX|5|TS|29768-9^DATE VACCINE INFORMATION STATEMENT PUBLISHED^LN|2|19981216|||||F|<CR>

OBX|6|TS|29769-7^DATE VACCINE INFORMATION STATEMENT PRESENTED^LN|2|19901207|||||F|<CR>

OBX-5 Observation Value (varies) 00573

Definition: This field contains the value observed by the observation producer. OBX-2-value type contains the data type for this field according to which observation value is formatted.

This field contains the value of OBX-3-observation identifier of the same segment. Depending upon the observation, the data type may be a number (e.g., dose number), a coded answer (e.g., a vaccine), or a date/time (the date/time

that the VIS was given to the client/parent). An observation value is always represented as the data type specified in OBX-2-value type of the same segment. Whether numeric or short text, the answer shall be recorded in ASCII text.

Coded values

When an OBX segment contains values of CE data types, the observations are stored as a combination of codes and/or text.

OBX-6 Units (CE) 00574

Definition: This shall be the units for the value in OBX-5. The value shall be from the ISO+ list of units.

OBX-11 Observation Result Status (ID) 00579

Definition: This field contains the observation result status. The expected value is F or final.

OBX-14 Date/Time of the Observation (TS) 00582

Definition: Records the time of the observation. It is the physiologically relevant date-time or the closest approximation to that date-time of the observation.

6.12 Order Request Segment (ORC)

The Common Order segment (ORC) is used to transmit fields that are common to all orders (all types of services that are requested). While not all immunizations recorded in an immunization message are able to be associated with an order, each RXA must be associated with one ORC, based on HL7 2.5.1 standard.

Table 6-9 Common Order Segment (ORC)

Seq	Len	Data	Cardinality	Value Set	Item#	Element Name	Usage	Comment
1	2	ID	[1..1]	0119	00215	Order Control	R	use RE
2		EI	[0..1]		00216	Placer Order	RE	See Guidance below.
3		EI	[1..1]		00217	Filler Order	R	See Guidance below.
10		XCN	[0..1]		00224	Entered By	RE	This is the person that entered this immunization record into the system.
12		XCN	[0..1]		00226	Ordering Provider	RE	This shall be the provider ordering the immunization. It is expected to be empty if the immunization record is transcribed from a historical record.

ORC Field Definitions

ORC-1 Order Control (ID) 00215

Definition: Determines the function of the order segment.

The value for VXU and RSP shall be RE.

Placer Order Number (ORC-2) and Filler Order Number (ORC-3) are unique identifiers from the system where an order was placed and where the order was filled. They were originally designed for managing lab orders. These fields have a usage status of Conditional in Version 2.5.1. The condition for each is that they must be present in either the OBR or ORC of a message. There has been confusion about usage for these fields. The Orders and Observations workgroup has addressed this confusion. In the context that ORC will be used in Immunization messaging either ORC-2 or ORC-3 must be populated. They may both be populated.

In the immunization context, it is not common to have one system placing and one filling an immunization order. In some cases neither is known. The use case that these have supported is to allow a system that sent an immunization record to another system to identify an immunization that needs to be changed using the Filler Order Number it had sent.

This Guide specifies that Placer Order Number is RE (required, but may be empty). The Filler Order Number SHALL is the unique immunization id of the sending system.

ORC-2 Placer Order Number (EI) 00216

Definition: The placer order number is used to identify uniquely this order among all orders sent by a provider organization.

ORC-2 is a system identifier assigned by the placer software application. The Placer Order Number and the Filler Order Number are essentially foreign keys exchanged between applications for uniquely identifying orders and the associated results across applications.

In the case where the ordering provider organization is not known, the sending system may leave this field empty.

ORC-3 Filler Order Number (EI) 00217

Definition: The filler order number is used to identify uniquely this order among all orders sent by a provider organization that filled the order.

This shall be the unique identifier of the sending system in a given transaction. In the case where system A sends the record to system B and system B then forwards to system C, system B will send its' own unique identifier.

Use of this foreign key will allow the initiating system to identify accurately the previously sent immunization record, facilitating update or deletion of that record.

In the case where a historic immunization is being recorded (i.e. from an immunization card), the sending system SHALL assign an identifier as if it were an immunization administered by a provider associated with the provider organization owning the sending system.

In the case where an RXA is conveying information about an immunization that was not given (e.g. refusal) the filler order number shall be 9999.

Note that the receiving system will need to store this value in addition to its own internal id in order for this to be used.

ORC-10 Entered By (XCN) 00224

Definition: This identifies the individual that entered this particular order. It may be used in conjunction with an RXA to indicate who recorded a particular immunization.

ORC-12 Ordering Provider (XCN) 00226

Definition: This field contains the identity of the person who is responsible for creating the request (i.e., ordering physician). In the case where this segment is associated with a historic immunization record and the ordering provider is not known, then this field should not be populated.

ORC-17 Entering Organization (CE) 00231

Definition: This field identifies the organization that the enterer belonged to at the time he/she enters/maintains the order, such as medical group or department. The person who entered the request is defined in ORC-10 -entered by.

ORC-21 Ordering Facility Name (XON) 01311

Definition: This field contains the name of the facility placing the order. It is the organization sub-unit that ordered the immunization. (i.e. the clinic)

ORC-22 Ordering Facility Address (XAD) 01312

Definition: This field contains the address of the facility requesting the order.

ORC-23 Ordering Facility Phone Number (XTN) 01312

Definition: This field contains the phone number of the facility requesting the order.

ORC-24 Ordering Provider Address (XAD) 01314

Definition: This field contains the address of the care provider requesting the order.

ORC –28 Confidentiality Code (CWE) 00615

Definition: This field allows a system to indicate if special privacy rules apply to the RXA that is associated with this ORC. For instance, if a state had special rules about who may see records for HPV vaccinations, then this field could convey that. The recommended value to use in this case is R for restricted.

If this field is populated, it indicates the active choice of the patient or responsible person. In other words, if the value indicates that the information must be protected, the person has stated that it must be protected. An empty field indicates that the client has not actively specified the way they want this data to be handled.

Local implementation guides should describe the local usage of this field and value.

6.13 Patient Demographic Segment (PD1)

The Patient Demographic Segment contains patient demographic information that may change from time to time. There are three primary uses for in Immunization Messages. These include indicating whether the person wants his/her data protected, whether the person wants to receive recall/reminder notices and the person's current status in the registry.

Table 6-10 Patient Demographic Segment (PD1)

SEQ	LEN	Data Type	Cardinality	Value Set	Item #	ELEMENT NAME	Usage	Comment
3	250	XON	[0..1]		00756	Patient Primary Facility	O	
4	250	XCN	[0..1]		00757	Patient Primary Care Provider Name & ID	O	
11	250	CE	[0..1]	0215	00743	Publicity Code	RE	
12	1	ID	[0..1]	0136	00744	Protection Indicator	RE	

13	8	DT	[0..1]		01566	Protection Indicator Effective Date	CE	If protection indicator is valued, then this field should be valued.
16	1	IS	[0..1]	0441	01569	Immunization Registry Status	RE	
17	8	DT	[0..1]		01570	Immunization Registry Status Effective Date	CE	If the registry status field is filled, then this should be valued.
18	8	DT	[0..1]		01571	Publicity Code Effective Date	CE	If the publicity code field is filled then this field should be valued.

PD1 Field Definitions

PD1-3 Patient Primary Facility (XON) 00756

Definition: This field contains the name and identifier that specifies the “primary care” healthcare facility selected by the patient. Use may be specified locally.

PD1-4 Patient Primary Care Provider Name & ID No. (XCN) 00757

Definition: Identifier for primary care provider. Use may be specified locally.

PD1-11 Publicity Code (CE) 00743

Definition: This field contains a user-defined code indicating what level of publicity is allowed (e.g., No Publicity, Family Only) for the patient. In the context of immunization messages, this refers to how a person wishes to be contacted in a reminder or recall situation. Refer to User-defined Table 0215 - Publicity Code for suggested values.

PD1-12 Protection Indicator (ID) 00744

Definition: This field identifies whether a person’s information may be shared with others . Specific protections policies are a local consideration (opt in or opt out, for instance). This field conveys the current state in the sending system.

The protection state must be actively determined by the clinician. If it is not actively determined, then the protection indicator shall be empty.

6.14 Patient Identifier Segment (PID)

The PID is used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information that, for the most part, is not likely to change frequently.

Table 6-11 Patient Identifier Segment (PID)

SEQ	LEN	Data Type	Cardinality	Value Set	ITEM#	Element Name	Usage	Constraint
1	4	SI	[0..1]		00104	Set ID - PID	RE	
3		CX	[1..*]		00106	Patient Identifier List	R	
5		XPN	[1..*]		00108	Patient Name	R	The first repetition shall contain the legal name. Multiple given names or initials are separated by spaces.
6		XPN	[0..1]		00109	Mother's Maiden Name	RE	
7		TS	[1..1]		00110	Date/Time of Birth	R	Required, must have month, day and year.
8	1	IS	[0..1]	0001	00111	Administrative Sex	RE	M= male, F = female, U = not determined or unspecified/unknown.
10		CE	[0..*]	0005	00113	Race	RE	The first triplet is to be used for the alpha code. The second triplet of the CE data type for race (alternate identifier, alternate text, and name of alternate coding system) should be used for governmentally assigned numeric codes (####-#).

SEQ	LEN	Data Type	Cardinality	Value Set	ITEM#	Element Name	Usage	Constraint
11		XAD	[0..*]		00114	Patient Address	RE	The first repetition should be the primary address.
13		XTN	[0..*]		00116	Phone Number - Home	RE	The first instance shall be the primary phone number. Only one item is allowed per repetition.
22		CE	[0..1]	0189	00125	Ethnic Group	RE	First triplet shall contain H,N,U if populated. Second triplet shall contain government issued code from table xxx, if populated. If both are populated, they must match logically.
23	60	ST	[0..1]		00126	Birth Place	O	Use may be specified locally.
24	1	ID	[0..1]	0136	00127	Multiple Birth Indicator	RE	The acceptable values are Y and N. If the status is undetermined, then field shall be empty.
25	2	NM	[0..1]		00128	Birth Order	CE	If Multiple Birth Indicator is populated with Y, then this field should contain the number indicating the person's birth order, with 1 for the first child born and 2 for the second.
29		TS	[0..1]		00740	Patient Death Date and Time	RE	
30	1	ID	[0..1]	0136	00741	Patient Death Indicator	CE	If patient death date is populated, then this field should be populated.

PID Field Definitions

PID-1 Set ID PID (SI) 00104

Definition: This field contains the number that identifies this transaction. For the first occurrence of the segment, the sequence number shall be one, for the second occurrence, the sequence number shall be two, etc.

PID-3 Patient Identifier List (CX) 00106

Definition: This required field lists one or more ids that are assigned to this patient. Each id should be identified as to type. MIIX requires at least one id which is designated as the Medical Record Number, Chart Number, or Primary Identifier. This id is referred to as MRN and is defined as the id that is used by the sending system to identify this patient.

MIIX stores multiple MRNs for a patient, one MRN for each provider that has reported to the registry. It is important that providers maintain internally unique MRNs and do not reassign them to other patient records, except in cases of patient record merges. In addition, care should be taken when installing new systems for providers that the MRNs remain the same, or do not clash with the previous system; e.g., if a previous reporting system assigned patient's sequential MRNs starting at 1000, it would not be good to replace it with a new system that reassigned patients with new MRNS also starting at 1000.

The registry stores two provider ids: (1) MRN and (2) Chart Id. The MRN must be reported electronically to MIIX and cannot be hand-entered by users. The Chart Id however, is a user editable field that is not required to be unique. When MIIX receives an update from a provider with a MRN, it copies this value into the patient's MRN and Chart Id field. But when it sends updates to the provider, it only submits the value in the MRN field. Users may change, or erase the Chart Id field at any time and they will not affect the MRN field.

MIIX also reads ids from marked with the following id types:

- 'SR' : State Registry ID (May be configured to different code)
- 'SS' : Social Security Number
- 'MA' : Medicaid Number
- 'BR' : Birth File Number
- 'MPI' : Master Patient Id

Maximum length of patient identifiers	
30	‘MR’: Medical Record Number
30	‘SR’: State Registry ID
9	‘SS’: Social Security Number
16	‘MA’: Medicaid Number
16	‘BR’: Birth File Number
30	‘MPI’: Master Patient Id

The Master Patient ID must be a positive integer.

PID-5 Patient Name (XPN) 00108

Definition: This required field records the patient's legal name, as it should appear in the registry. The first and last names are both required. Names that are too long will be silently truncated.

Note: Alias names should be sent in PID-9.

PID-6 Mother's Maiden Name (XPN) 00109

Definition: This field is an optional field that contains the mother's maiden name. Only the last name is supported by the registry.

PID-7 Date/Time of Birth (TS) 00110

Definition: The date of birth field is required and must not occur in the future. Any time component sent is ignored.

PID-8 Administrative Sex (IS) 00111

Definition: This field contains the patient's sex

Sex Codes	
F	Female
M	Male
O	Other
U	Unknown

PID-9 Patient Alias (XPN) 00112

Definition: This field contains other legal names the patient has been known by. Note that 2.5.1compliant messages should send this information as repetitions of PID-5 instead of in this field.

PID-10 Race (CE) 00113

Definition: This optional field contains the patient's indicated race(s). This field may repeat to report multiple race codes.

Multiple Race Codes	
2076-8	Native Hawaiian or Other Pacific Islander
2131-1	Multi-Racial
2028-9	Asian
2106-3	White
1002-5	American Indian or Alaska Native
2054-5	Black or African -American

These values have been deprecated but may still be submitted:

Optional Race Codes	
U	Unknown
O	Multi-Racial
A	Asian
W	White
I	American Indian or Alaska Native
B	Black or African-American

Hl7 sub-field	Notes
Fax or phone number	Format: [NNN][(999)999-9999[X99999][B99999][C any text], supported for backwards compatibility
Telecommunication use code (ID)	Values found in HL7 code table 0201. Only used to indicate whether this repetition contains a phone number, fax number, or email address.
Telecommunication equipment type (ID)	Values found in HL7 code table 0202. Used to indicate whether this repetition contains a phone number, fax number, or email address.
Email address (ST)	Email address.
Country code (NM)	Not supported
Area/city code (NM)	2.5.1 messages should send this information here
Phone number (NM)	2.5.1 messages should send this information here
Extension (NM)	2.5.1 messages should send this information here
Any text (ST)	Not supported

PID-11 Patient Address (XAD) 00114

Definition: This field contains the primary mailing address and mailing address of the patient or the patient's primary guardian. Values that are too long will be silently truncated.

PID-13 Phone Number - Home (XTN) 00116

Definition: This field contains the patient's home phone number.

PID-15 Primary Language (CE) 00118

Definition: This field contains the patient's primary language.

HL7 sub-field	Notes
Identifier (ST)	Primary language as defined by HL7 code table 0296.
Text (ST)	Description of the primary language.
Coding system (ST)	Should be 'HL70296'.
Alternate identifier (ST)	Not supported
Alternate text (ST)	Not supported
Alternate code system (ST)	Not supported

Language Codes	
EN	English
ES	Spanish

PID-19 SSN Number - Patient (ST) 00122

Definition: *This field has been retained for backward compatibility only.* It is recommended that {PID-3 Patient Identifier List|} be used to list all patient identifiers. However, in order to maintain backward compatibility this field will still be read.

PID-22 Ethnic Group (CE) 00125

Definition: This field contains the patient's ethnic group. This is currently used to indicate Hispanic or non-Hispanic. This was previously sent as race code. This use is now deprecated.

MIIX values accepted:

Ethnic Group Code	
1	Hispanic or Latino
2	Not Hispanic or Latino
3	Unknown

PID-24 Multiple Birth Indicator (ID) 00127

Definition: This field indicates whether this child was part of a multiple birth (e.g., a twin).

Multiple Birth Indicator	
Y	Yes
N	No

In order for MIIX to properly record a multiple birth, it is necessary to know the birth count, where twins = 2, triplets = 3, etc. HL7 does not support transmitting this information. As a compromise, MIIX will accept an ordinal number instead of the Yes to indicate a multiple birth.

Values accepted:

Multiple Birth Code	
1	No-Single Birth
2	Yes-Twin
3	Yes-Triplet
4	Yes-Quadruplet
5	Yes-Quintuplet
6	Yes-Sextuplet
7	Yes-Septuplet
8	Yes-Octuplet
9	No-invalid value

PID-25 Birth Order (NM) 00128

Definition: When a patient was part of a multiple birth (e.g. twin), a value (number) indicating the patient's birth order is entered in this field. If PID-24 is populated, then this field should be populated.

PID-29 Patient Death Date and Time (TS) 00740

Definition: This field contains the date and time at which the patient death occurred.

PID-30 Patient Death Indicator (ID) 00741

Definition: This field indicates that the child has passed away. In MIIX, this value is stored as the patient's registry status.

Patient Death Indicator	
Y	Yes
N	No

PID-33 Last Update Date/Time (TS) 01537

Definition: This field contains the last update date and time for the patient's/person's identifying and demographic data, as defined in the PID segment.

6.15 Patient Visit Segment (PV1)

Table 6-12 Patient Visit (PV1)

Seq	Len	Data Type	Cardinality	Value Set	ITEM#	Element Name	Usage	Constraint
1	4	SI	[0..1]		00131	Set ID - PV1	O	If populated, this should be 1.
2	1	IS	[1..1]	0004	00132	Patient Class	R	R
20		FC	[1..*]	0064	00150	Financial Class	R	

PV1 Field Definitions

PV1-2 Patient Class (IS) 00132

Definition: Patient class is required by HL7, but MIIX ignores it when receiving and sets it to 'R' for recurring patient when sending.

PV1-20 Financial Class (FC) 00150 This field contains the financial class(es) assigned to the patient. It reflects the current eligibility status. For children, this will include the eligibility status for the **Vaccines for Children program (VFC)**. This field has 2 components: financial class and date. The date is the date that the status was assessed. Refer to User-defined Table 0064 - Financial Class for suggested values.

	Immunization Registry Status	Code
V00	VFC eligibility not determined/unknown	
V01	Not VFC eligible	
V02	VFC eligible-Medicaid/Medicaid Managed Care	1
V03	VFC eligible-uninsured	2
V04	VFC eligible-American Indian/Alaskan Native	3
V05	VFC eligible-Federally Qualified Health Center Patient (under-insured)	4
V06	VFC eligible - CHIP	8

* Additional financial codes that are not used have been omitted from this table listing.

An unknown or a not eligible code is recorded as a blank VFC Eligible code, since it is only set when the patient has a positive VFC status. State specific eligibility is coded differently depending on state configurations.

Financial class is sent with every patient. The values are mapped as follows:

	VFC Eligible	Status
	No value	V00
1	Medicaid	V02
2	Uninsured	V03
3	Nat. Amer. Or Alaskan	V04
4	Underinsured	V05
5	Not defined	V06
8	CHIP	V06

The CDC immunization guide recommends that shots that are given the same day as the effective date be considered as administered under the appropriate VFC program rules as listed here. MIIX does not consider this field since it is possible for a patient to be VFC eligible at the time of the visit but not receive a publicly supplied vaccination. VFC eligibility must be explicitly defined for each vaccination.

6.16 Query Acknowledgement Segment (QAK)

Table 6-13 Query Acknowledgement (QAK)

Seq	Len	Data	Cardinality	Value	Item #	Element Name	Usage	Comment
1	32	ST	[1..1]		00696	Query Tag	R	

QAK Field Definitions

QAK-1 Query Tag (ST) 00696

Definition: This field contains the value sent in QPD-2 (query tag) by the initiating system, and will be used to match response messages to the originating query. The responding system is required to echo it back as the first field in the query acknowledgement segment (QAK).

QAK-2 Query Response Status (ID) 00708

Definition: Indicates what kind of response is being returned. Here are the values that MIIX expects and that it sends:

QAK Response Code	
OK	Data found, no errors
NF	No data found, no errors
AE	Error occurred
AR	Error occurred

6.17 Query Parameter Definition (QPD)

Table 6-14 Query Parameter Definition (QPD)

Seq	Len	Data Type	Cardinality	Value Set	ITEM #	Element Name	Usage	Comment
1		CE	[1..1]	0471	01375	Message Query Name	R	
2	32	ST			00696	Query Tag	R	Generated by the initiating
3-n		varies			01435	User Parameters (in successive fields)	R	The specification of this sequence is found in the profile specific to the use case.

6.18 Query Definition Segment (QRD)

Table 6-15 Query Acknowledgement Segment

SEQ	LEN	Data Type	CDC IG Cardinality	MIIX Cardinality	Value set	ELEMENT NAME	CDC IG Usage	Comment
1	26	TS	[1..1]	[1..1]		Query date/time	R	Echoed back in response
2	1	ID	[1..1]	[1..1]	0106	Query format code	R	Assumed to be R
3	1	ID	[1..1]	[1..1]	0091	Query priority	R	Assumed to be I
4	10	ST	[1..1]	[1..1]		Query ID	R	Echoed back in response
5	1	ID	[0..1]	[0..1]	0107	Deferred response type	O	Ignored
6	26	TS	[0..1]	[0..1]		Deferred response date/time	O	Ignored
7	10	CQ	[1..1]	[1..1]	0126	Quantity limited request	R	
8	60	XCN	[1..*]	[1..*]		Who subject filter	R	
9	60	CE	[1..*]	[1..*]	0048	What subject filter	R	
10	60	CE	[1..*]	[1..*]		What department data code	R	

QRD Field Definitions

QRD-1: Query Date/Time

Definition: The date and time the query was made. MIIX reads this value only to put it in the response as required by HL7; otherwise, MIIX ignores this value.

QRD-2: Query Format Code

Definition: MIIX expects this to always be ‘R’ for Record. If not it is assumed to be ‘R’, MIIX essentially ignores this field and will always send ‘R’.

QRD-3: Query Priority

Definition: MIIX expects this to always be ‘I’ for Immediate. If not it is assumed to be ‘I’. MIIX essentially ignores this field and will always send ‘I’.

QRD-4: Query Id

Definition: Query ID is required by HL7 and MIIX will report it back in the query response just as HL7 specifies. MIIX does not use the query id for any other purpose.

QRD-7: Quantity Limited Request

Definition: The Quantity Limited Request is the maximum number of records that should be returned. MIIX has an internal maximum with a default of 20. The maximum number returned is the lesser of this value and the internal maximum. The internal maximum can be changed by the MIIX administrator.

This application does not support any other limiting units and therefore ignores any supplied.

QRD-8: Who Subject Filter (XCN)

Definition: The Who Subject Filter is part of the name of the patient to search by. MIIX expects at least part of the patient name to appear here. Different searches will be performed depending on how complete this information is. The patient id and type can be supplied in components 1 and 13 respectively, and may be the patient MRN (usually denoted by MR, but is configurable) or State Registry id (usually type SR, also configurable).

QRD-9: What Subject Filter (CE)

Definition: The What Subject Filter indicates what query to run. MIIX supports two query methods:

- **VXI** : Standard CDC defined query for immunization registries
- **ZVXI-IRMS**: STC defined query for requested a batch of updates

The VXI query is defined in the CDC 2.3.1 Implementation Guide.

QRD-10: What Department Data Code (CE)

Definition: Can include drug code, item number, etc., consistent with the subject in QRD-9. Can contain multiple occurrences separated by repetition delimiters.

This is required by HL7 but is ignored by MIIX.

6.19 Query Filter Segment (QRF)

Table 6-16 Query Filter Segment (QRF)

SEQ	LEN	Data Type	CDC IG Cardinality	MIIX Cardinality	Value set	ELEMENT NAME	CDC IG Usage	Comment
1	20	ST	[1..*]	[1..*]		Where subject filter	R	
2	26	TS	[0..1]	[0..1]		When data start date/time	O	
3	26	TS	[0..1]	[0..1]		When data end date/time	O	
4	60	ST	[0..*]	[0..*]		What user qualifier	O	
5	60	ST	[0..*]	[0..*]		Other query subject filter	O	
6	12	ID	[0..*]	[0..*]	0156	Which date/time qualifier	O	
7	12	ID	[0..*]	[0..*]	0157	Which date/time status qualifier	O	
8	12	ID	[0..*]	[0..*]	0158	Date/time selection qualifier	O	
9	60	TQ	[0..1]	[0..1]		When quantity/timing qualifier	O	

QRF-1: Where Subject Filter

Definition: This field is required by HL7, but is ignored by MIIX.

QRF-2: When Data Start Date/Time

Definition: The data start date/time is used by MIIX to indicate the start of the range of which vaccinations should be returned. All vaccinations are updated in the registry at different times. By setting this value, only vaccinations updated on or since this date will be returned.

QRF-3: When Data End Date/Time

Definition: The data start date/time is used by MIIX to indicate the end of the range of which vaccinations should be returned. All vaccinations are updated in the registry at different times. By setting this value only vaccinations updated on or before this date will be returned.

QRF-5: Other Query Subject Filter

Definition: The query subject filter repeats and the order of the repeats are important. The following values may be sent in this field:

Repeat	Field
1	Patient Social Security Number
2	Patient Birth Date
3	Patient Birth State
4	Patient Birth Number
5	Patient Medicaid Number
6	Mother Name
7	Mother Maiden Name
8	Mother Social Security Number

Repeat	Field
9	Father Name First
10	Father Social Security Number
11	Phone Number

6.20 Pharmacy/Treatment Administration Segment (RXA)

Table 6-17 Pharmacy/Treatment Administration (RXA)

Seq	Len	Data Type	Cardinality	Value Set	Item #	Element Name	Usage	Comment
1	4	NM	[1..1]		00342	Give Sub-ID Counter	R	Constrain to 0 (zero)
2	4	NM	[1..1]		00344	Administration Sub-ID Counter	R	Constrain to 1
3		TS	[1..1]		00345	Date/Time Start of Administration	R	
4		TS	[0..1]		00346	Date/Time End of Administration	RE	If populated, this should be the same as Start time (RXA-3)
5		CE	[1..1]	0292	00347	Administered Code	R	CVX code is strongly preferred.
6	20	NM	[1..1]		00348	Administered Amount	R	If administered amount is not recorded, use 999.
7		CE	[0..1]		00349	Administered Units	CE	If previous field is populated by any value except 999, it is required.
8		CE	[0..1]		00350	Administered Dosage Form	O	

Seq	Len	Data Type	Cardinality	Value Set	Item #	Element Name	Usage	Comment
9		CE	[0..*]	NIP 0001	00351	Administration Notes	RE	The primary uses of this field it to convey if this immunization record is based on a historical record or was given by the provider recording the immunization. All systems should be able to support this use. Other uses of this field are permitted, but need to be specified locally.
10		XCN	[0..1]		00352	Administering Provider	RE	This is the person who gave the administration.
11		LA2	[0..1]		00353	Administered-at Location	R	
12	20	ST	[0..1]		00354	Administered Per (Time Unit)	O	
13	20	NM	[0..1]		01134	Administered Strength	O	
14		CE	[0..1]		01135	Administered Strength Units	O	
15	20	ST	[0..*]		01129	Substance Lot Number	R	
16		TS	[0..1]		01130	Substance Expiration Date	CE	If the lot number is populated, this field should be valued.
17		CE	[0..*]	0227	01131	Substance Manufacturer Name	R	
18		CE	[0..*]		01136	Substance/Treatment Refusal Reason	C	If the Completion status is RE, then this shall be populated
19		CE	[0..1]		01123	Indication	O	

Seq	Len	Data Type	Cardinality	Value Set	Item #	Element Name	Usage	Comment
20	2	ID	[0..1]	0322	01223	Completion Status	RE	If this field is not populated, it is assumed to be CP or complete. If the Refusal reason is populated, this field shall be set to RE.
21	2	ID	[0..1]	0323	01224	Action Code - RXA	RE	
22		TS	[0..1]		01225	System Entry Date/Time	O	
23	5	NM	[0..1]		01696	Administered Drug Strength Volume	O	

RXA Field Definitions

RXA-1 Give Sub-ID Counter (NM) 00342

Definition: This is required by HL7, but MIIX ignores it. The CDC Immunization Guide recommends sending 0.

RXA-2 Administration Sub-ID Counter (NM) 00344

Definition: This field indicates which dose this is within the vaccination series. Because MIIX collects data from multiple sources, it does not explicitly record the vaccination dose. Instead a forecast mechanism dynamically marks vaccinations as valid or invalid, and indicates when further vaccinations are due.

RXA-3 Date/Time Start of Administration (TS) 00345

Definition: This required field indicates the date when the vaccination was given. The RXA segment has been defined to allow for specifying the start and end of IV or timed administrations, so this field indicates the start and the next field (RXA-4) indicates the end of the administration. MIIX expects that both times are exactly the same.

RXA-4 Date/Time End of Administration (If Applies) (TS) 00346

Definition: This field indicates the date when the vaccination was given. The RXA segment has been defined to allow for specifying the start and end of IV or timed administrations, so the previous field (RXA-3) indicates the start and this field indicates the end of the administration. MIIX expects that both times are exactly the same.

RXA-5 Administered Code (CE) 00347

Definition: This required field indicates the vaccination that was administered.

VARICELLA HISTORY OF DISEASE

Although history of Varicella disease is not a CDC or STC immunization code it can be submitted as a CPT or CVX/CDC code. To do this, the HL7 interface needs to be configured with the code that will be used to identify the Varicella history of disease. The recommended code is '921'. In HL7 v2.5.1 this should be sent as a contraindication in an observation on a non-administered vaccination.

RXA-6 Administered Amount (NM) 00348

Definition: This field indicates how much of the vaccine was administered.

RXA-7 Administered units (CE) 00349

Definition: This field is conditional because it is required if the administered amount code does not imply units. Must be in simple units that reflect the actual quantity of the substance administered. It does not include compound units.

RXA-9 Administration Notes (CE) 00351

Definition: This field holds the information source and the free-text comments for the vaccination. The information source is used to designate whether a vaccination is historical or not. If a vaccination is known from second-hand information, such as a paper record, it is historical; otherwise, it is considered administered. The information source is very important and allows MIIX to decide the weight it should give to reported vaccinations. The free-text comment can contain any comments made by those who ordered, administered or recorded the vaccination. This text is displayed with all the other details of a vaccination when shown to a user.

RXA-10 Administering Provider (XCN) 00352

Definition: This field records the person who administered the vaccination. The CDC guide allows for three different persons to be recorded here: (OEI) the person who ordered the vaccination to be given, (VEI) the person who administered the vaccination, and (REI) the person who recorded the administration. MIIX does not differentiate between these three persons and only allows one person to be recorded on an immunization record. This should be the person most knowledgeable about event and the one of which questions should be directed from other providers when there are questions about the administration.

RXA-11 Administered-at Location (LA2) 00353

Definition: This field indicates the facility where the patient received an immunization or where the immunization was recorded (if historical). The concept of facility in MIIX is fairly general and may also be termed "organization" and has specific meaning as defined by the IRMS it belongs to. A facility in a hospital network may indicate the hospital, or even the care unit. A facility in a public health system may indicate departments, or individual clinics. The facility information is used to aggregate patient and vaccination data into reportable groups.

RXA-15 Substance Lot Number (ST) 01129

Definition: The Substance Lot Number is the lot number associated with the vaccination given. This is used for inventory and recall purposes. MIIX takes all lot numbers as they are, but with one exception: Zero’s and letter O’s are treated as the same. So “0111” is equivalent to “o111”, or “O111”.

RXA-16 Substance Expiration Date (TS) 01130

Definition: This field contains the expiration date of the medical substance administered. It may remain empty if the dose is from a historical record.

Note: Vaccine expiration date does not always have a "day" component; therefore, such a date may be transmitted as YYYYMM.

RXA-17 Substance Manufacturer Name (CE) 01131

Definition: The Substance Manufacturer Name is the Manufacturer code or MVX code. Please use proper MVX codes. This code field may be mapped if you are using a different code set.

RXA-18 Substance/Treatment Refusal Reason (CE) 01136

Definition: This field contains the reason the patient refused the medical substance/treatment. Any entry in the field indicates that the patient did not take the substance. If this field is populated RXA-20, Completion Status shall be populated with RE.

RXA-19 Indication (ID) (CE) 01123

Definition: The Indication field contains the reason why this vaccination is needed.

This is not normally valued since the vaccinations are recommended for all patients unless contraindicated. In the original HL7 importer in MIIX there was a misunderstanding as to what this field meant and it was assigned to the MIIX adverse event field. As this field is not currently used it is still used by MIIX to accept and report adverse events associated with the vaccination procedure. For accepted code values please see the Adverse Events code table.

RXA-20 Completion Status (ID) 01223

Definition: This field indicates if the dose was successfully given. It must be populated with RE if RXA-18 is populated. If a dose was not completely administered or if the dose were not potent this field may be used to label the immunization.

RXA-21 Action Code – RXA (ID) 01224

Definition: The Action Code indicates whether to add, update, or delete a vaccination.

MIIX treats add and update as the same, duplicate vaccinations are always merged together. The registry will delete a vaccination if so indicated.

RXA-22 System Entry Date/Time (TS) 01225

Definition: This field records the date/time that this record was created in the originating system.

6.21 Pharmacy/Treatment Route Segment (RXR)

Table 6-18 Pharmacy Treatment Route (RXR)

Seq	Len	Data Type	Cardinality	Value Set	Item #	Element Name	Usage	Constraint
1		CE	[1..1]	0162	00309	Route	R	
2		CWE	[0..1]	0163	00310	Administration Site	RE	
3		CE	[0..1]	0164	00311	Administration	O	
4		CWE	[0..1]	0165	00312	Administration	O	
5		CE	[0..1]		01315	Routing Instruction	O	
6		CWE	[0..1]	0495	01670	Administration Site	O	

RXR Field Definitions

RXR-1 Route (CE) 00309

Definition: This field indicates the route used for the immunization.

HL7 Sub-Field	Notes
Identifier (ST)	Route
Text (ST)	Description of route
Coding system (ST)	Value as ‘HL70162’
Alternate identifier (ST)	Not supported

Alternate text (ST)	Not supported
Alternate coding system (ST)	Not supported

RXR-2 Administration Site (CWE) 00310

Definition: This field indicates the site for the immunization given.

HL7 Sub-field	Notes
Identifier (ST)	Site
Text (ST)	Description of site
Coding system (ST)	Value ‘HL70163’
Alternate identifier (ST)	Not supported
Alternate text (ST)	Not supported
Alternate coding system(ST)	Not supported

7.0 Messages for Transmitting Immunization Information

7.1 Introduction

This chapter describes each of the messages used to accomplish the use cases described in previous chapters. These messages are built from the segments described in Chapter 4, Segments and Message Details. The Segments are built using the Data Types specified in Chapter 4. Readers are referred to these chapters for specifics on these components. Issues related to segments and fields, which are message specific, will be addressed in this chapter.

Table 7-1 Supported Messages

Message	Purpose	Related	Associated
VXU	Send Immunization	ACK	
QBP	Request Immunization History and Request Person Id	RSP	Z34^CDC
RSP	Respond to Request for Immunization Record and Respond to	QBP	Z31^CDC Z32^CDC
ACK	Send Message Acknowledgement	VXU, ADT, QBP	
ADT	Send Person Demographic Data	ACK	

7.2 Send Immunization History (VXU)

Systems may send unsolicited immunization records using a VXU. This may be a record that is new to the receiving system or may be an update to an existing record. The following table lists the segments that are part of a VXU. Some of the optional segments are not anticipated to be used. See Appendix B for detailed activity diagrams and example messages that illustrate the processing of this message.

Table 7-2 VXU Segment Usage

Segment	Cardinality	Usage	Comment
MSH	[1..1]	R	Every message begins with an MSH.
[{SFT }]	[0..*]	O	

Segment	Cardinality	Usage	Comment
PID	[1..1]	R	Every VXU has one PID segment.
PD1	[0..1]	RE	Every PID segment in VXU may have one or less
NK1	[0..*]	R	The PID segment in a VXU may have zero or more
PV1	[0..1]	RE	The PID segment in a VXU may have zero or one PV1 segment. Subsequent messages
PV2	[0..1]	O	Not described in this Guide. May be locally specified.
GT1	[0..*]	O	Not described in this Guide. May be locally specified.
Begin Insurance	[0..*]	O	The insurance group may repeat.
IN1	[0..1]	O	Not described in this Guide. May be locally specified.
IN2	[0..1]	O	Not described in this Guide. May be locally specified.
IN3	[0..1]	O	Not described in this Guide. May be locally specified.
End Insurance group			
Begin Order group			Each VXU may have zero or more Order groups
ORC	[1..*]	R	The order group in a VXU may have one or more ORC segments.
TQ1	[0..1]	O	Not described in this Guide. May be locally specified.
TQ2	[0..1]	O	Not described in this Guide. May be locally specified.
RXA	[1..1]	R	Each ORC segment in a VXU must have one RXA
RXR	[0..1]	RE	Every RXA segment in a VXU may have zero or one RXR segments.
OBX	[0..*]	RE	Every RXA segment in a VXU may have zero or more OBX segments.
NTE	[0..1]	RE	Every OBX segment in a VXU may have zero or one NTE segment.
End Order Group			

7.3 Requesting An Immunization History from Another System (VXQ)

The use of VXQ is not supported for 2.5.1 immunization messaging. Version 2.5.1 implementations are expected to support QBP style query.

7.4 Query (QBP) and Respond to Request for Information (RSP)

Not yet implemented in MIIX.

7.5 Acknowledging a Message (ACK)

The ACK returns an acknowledgement to the sending system. This may indicate errors in processing.

Table 7-3 Message Acknowledgement Segment (ACK)

Segment	Cardinality	Usage	Comment
MSH	(1..1)	R	
MSA	(1..1)	R	
[{ERR}]	(0..*)	RE	Include if there are errors.

7.6 Sending Demographic Information (VXU or ADT)

Use of the ADT message is required for participation in the PIX/PDQ profile for maintenance of the Master Person Index. In addition, it may be used to populate an IIS with data from systems that do not contain immunization data or that can't produce immunization messages.

In most cases, at present, use of the ADT message is not anticipated for widespread use outside of this context. Since this Implementation Guide focuses on messaging immunization information, those interested in use of the ADT are referred to Chapter 3 of the Version 2.5.1 documentation. In addition, the IHE profiles include clear guidelines on using an ADT. **The VXU message may be used to convey demographic information without inclusion of immunization information, since ORC are optional segments.**

8.0 Code Tables

Table 8-1 Adverse Reaction

Value	Description
1	Adverse reaction occurred. Contact appropriate party to learn details.
10	Paralytic polio in an immunodeficient recipient
11	Paralytic polio in a vaccine-associated community case
12	Vaccine-strain polio viral infection in a non-immunodeficient recipient
13	Vaccine-strain polio viral infection in an immunodeficient recipient
14	Vaccine-strain polio viral infection in a vaccine-associated community case
15	Early on-set HIB disease
16	Inadvertent autoinoculation
17	Eczema vaccinatum
18	Generalized vaccinia
19	Progressive vaccinia
2	Anaphylaxis or anaphylactic shock
20	Erythematous or urticarial rashes
21	Post vaccinial encephalitis
22	Injection site reaction
23	Systemic reactions, e.g. immediate hypersensitivity, fever or muscle aches
24	Fetal vaccinia
25	Death
26	Other
27	Bronchiolitis

Value	Description
28	Gastroenteritis
29	Pneumonia
3	Brachial neuritis
30	Urinary tract infection
31	Seizure
4	Any sequel (including death) of events
5	Encephalopathy (or encephalitis)
6	Chronic arthritis
7	Thrombocytopenic purpura
8	Vaccine-strain measles viral infection in an immunodeficient recipient
9	Paralytic polio in a non-immunodeficient recipient

Table 8-2 Anatomical Route

Value	Description
INTRAMUSCULAR	Intramuscular
INTRADERMAL	Intradermal
SUBCUTANEOUS	Subcutaneous
ORAL	Oral
NASAL	Nasal
IV	Intravenous
OTH	Other Miscellaneous
TD	Transdermal

Table 8-3 Anatomical Site

Value	Description
LEFT_ARM	Left Arm
RIGHT_ARM	Right Arm
LEFT_THIGH	Left Thigh
RIGHT_THIGH	Right Thigh
LEFT_GLUTEUS	Left Gluteus
RIGHT_GLUTEUS	Right Gluteus
NOSE	Nose
MOUTH	Mouth
LD	Left Deltoid
LVL	Left Vastus Lateralis
LLFA	Left Lower Forearm
RVL	Right Vastus Lateralis
RD	Right Deltoid
RLFA	Right Lower Forearm

Table 8-4 Contraindication

Value	Type	Description
1	EXEMPTION	Parent or Patient Refusal: Personal
2	CONTRAINDICATION	Laboratory evidence of immunity
3	CONTRAINDICATION	Anaphylactic reaction to a previous dose of the vaccine
4	CONTRAINDICATION	Anaphylactic reaction to a vaccine component

Value	Type	Description
5	CONTRAINDICATION	Anaphylactic reaction to streptomycin
6	CONTRAINDICATION	Anaphylactic reaction to neomycin
7	CONTRAINDICATION	Anaphylactic reaction to gelatin
8	CONTRAINDICATION	Anaphylactic reaction to bakers yeast
9	CONTRAINDICATION	Encephalopathy within 7 days after a previous dose
10	PRECAUTION	Fever of >= 40.5 C (105 F) within 48 hours of previous dose
11	PRECAUTION	Collapse or shock-like state within 48 hours of previous dose
12	PRECAUTION	Convulsions (seizures) within 72 hours of previous dose
13	PRECAUTION	Persistent crying lasting >= 3 hours within 48 hours of prev. dose
14	PRECAUTION	Guillain-Barre syndrome (GBS) within 6 weeks
15	CONTRAINDICATION	Symptomatic HIV in recipient
16	CONTRAINDICATION	Symptomatic HIV in recipient
17	PRECAUTION	Recent administration of antibody-containing blood products
18	CONTRAINDICATION	Immunodeficiency (household contact)
19	CONTRAINDICATION	Immunodeficiency in recipient
20	PRECAUTION	Underlying unstable, evolving neurologic disorder
21	PRECAUTION	Thrombocytopenic purpura (history)
22	CONTRAINDICATION	Pregnancy of recipient
23	PRECAUTION	Pregnancy of recipient
24	CONTRAINDICATION	Weight <= 2000 grams
25	PRECAUTION	Moderate or severe acute illness
26	CONTRAINDICATION	Anaphylactic reaction to Thimerosal
27	CONTRAINDICATION	Anaphylactic reaction to Polymixin B

Value	Type	Description
28	CONTRAINDICATION	Patient or parent report of disease
29	CONTRAINDICATION	Anaphylactic reaction to Alum
30	CONTRAINDICATION	Anaphylactic reaction to 2-Phenoxyethnol (Havrix)
31	CONTRAINDICATION	TB - untreated, active
32	CONTRAINDICATION	Previous anthrax disease
33	CONTRAINDICATION	Age < 18 years
34	CONTRAINDICATION	Eczema, history of eczema, in self or household contact
35	EXEMPTION	Parent or Patient Refusal: Religious
36	CONTRAINDICATION	Moderate or severe illness
37	CONTRAINDICATION	Medical - Not otherwise specified
38	CONTRAINDICATION	Deferred pending further medical information
39	CONTRAINDICATION	Known cardiac disease
40	CONTRAINDICATION	Hypersensitivity/Anaphylactic reaction to eggs/egg products
41	CONTRAINDICATION	5-17 years of age receiving aspirin/aspirin containing therapy
42	CONTRAINDICATION	History of Gullain Barre syndrome
43	CONTRAINDICATION	Chronic underlying medical conditions, incl. asthma or reactive airway disease
44	CONTRAINDICATION	Allergic to Doxycycline
45	CONTRAINDICATION	Allergic to Ciprofloxacin
46	CONTRAINDICATION	Hypersensitivity/Anaphylactic reaction dry rubber latex
47	CONTRAINDICATION	Laboratory evidence of suppression
48	CONTRAINDICATION	Medical Condition - Immunosuppression
49	PRECAUTION	Immunodeficient close contacts

Table 8-5 Ethnicity Codes

Code	Old Code	SIIS Code	Description
2135-2	H	1	Hispanic or Latino
2186-5	N	2	Not Hispanic or Latino
	U	3	Unknown

Table 8-6 Inactive Code

Value	Description
A	Address Incorrect
D	Deceased
F	Postal Forward Order Expired
G	Moved or Gone Elsewhere
M	Moved Out of State
N	No Postal Forward on File
O	Other
P	Changed to another provider
U	Delivery Unsuccessful

Table 8-7 Insert Error

Value	Description
1	Invalid IRMS system id.
10	ASIIS vaccine code and CDC code vaccine code both present.

Value	Description
11	IRMS patient ID cannot be sent with CDC vaccine code.
12	Billing patient ID cannot be sent with ASIIS vaccine code.
13	CDC vaccine code not found.
14	ASIIS vaccine code not found.
15	Invalid or missing vaccination date
16	IRMS sys-pat ID combo blocked.Patient deleted from Registry.
17	Missing facility name.
18	Missing physician last name.
19	Facility exists as another IRMS_FAC_ID
2	Missing physician id.
20	Administered vaccination cannot be unspecified antigen.
21	More than one facility exists in this IRMS with same name.
22	Physician exists for facility with different irms_phys_id.
23	Multiple race code values not separated by comma.
24	Patient birthdate not allowed by registry administrative settings
3	Missing facility id.
4	Missing patient id.
5	IRMS patient ID and Billing patient ID both present.
6	Missing patient first name.
7	Missing patient last name.
8	Missing patient birth date.
9	Missing vaccine code.

Table 8-8 Language

Value	Description
E	English
S	Spanish

Table 8-9 Race Codes

Code	SIIS Code	Description
1002-5	5	American Indian or Alaska Native
2028-9	4	Asian
2076-8	7	Native Hawaiian or Other Pacific Islander
2054-5	2	Black or African American
2106-3	1	White
2135-2		Hispanic or Latino (see Ethnicity table)
2186-5		not Hispanic or Latino (see Ethnicity table)
2131-1	6	Multi-Racial
	8	Multi-racial
	9	Unknown

Table 8-10 Administrative Sex Codes

Code	Description
M	Female

Code	Description
F	Male
U	Unknown
O	Other

Table 8-11 Vaccination SIIS Codes

SIIS Code	CPT	CVX	Description
1	90701	1	DTP
2	90712	2	OPV
3	90707	3	MMR
4	90708	4	M/R
5	90705	5	Measles
6	90706	6	Rubella
7	90704	7	Mumps
8	90744	8	Hepatitis B--adol. or pediatric
9	90718	9	Td (Adult)
10	90713	10	IPV
11		11	Pertussis
12	90719		Diphtheria Toxoid
13	90389	13	TIG
14	90281	86	IG
15	90283	87	Immune globulin, (IGIV)
16	90659	16	Influenza Whole
17	90645	17	Hib--unspecified

SIIS Code	CPT	CVX	Description
19		19	BCG
20	90700	20	DTaP
21	90716	21	Varicella
22	90720	22	DTP/Hib
23	90647	49	Hib--PRP-OMP
24	90648	48	Hib--PRP-T
25	90690	25	Typhoid, oral
26	90725	26	Cholera
28	90702	28	DT (Pediatric)
29	90371	30	HBIG
30	86580	96	PPD Test
31	90732	33	Pneumococcal(PPV23)
32	90717	37	Yellow Fever
33	90733	32	Meningococcal (MPSV4)
34	90633	83	Hep A 2 dose - Ped/Adol
35	90703	35	Tetanus Toxoid, adsorbed
36	90396	36	VZIG
37	90581	24	Anthrax
38	90709	38	Rubella/Mumps
39	90735	39	Japanese Encephalitis
40	90675	18	Rabies
41	90691	101	Typhoid, ViCPs
42	90747	44	Hepatitis B--dialysis

SIIS Code	CPT	CVX	Description
43	90746	43	Hepatitis B--adult
45	90744	45	Hep B - unspecified
46	90646	46	Hib-PRP-D
47	90645	47	Hib--HbOC
48	90287	27	Botulinum Antitoxin
49	90291	29	CMVIG
50	90727	23	Plague
52	90375	34	RIG
53	90721	50	DTaP/Hib
54	90710	94	MMR/Varicella
55	57		DTP/IPV
56		42	Hepatitis B--adolescent, high risk
57	90748	51	Hep B/Hib
58	90296	12	Diphtheria antitoxin
59	90680	74	Rotavirus, tetravalent
60	90665	66	Lyme Disease
61	90658	15	Influenza Split
62	90660	111	Influenza Nasal Spray
63	90676	40	Rabies Intradermal
67	90714	113	Td Adult, Preserv Free
100	90744	8	Hep B Ped/Adol - Preserv Free
101	90744	8	Hep B Ped/Adol - W/Thimerosal
102	90669	100	Pneumococcal(PCV7)

SIIS Code	CPT	CVX	Description
103	90634	84	Hep A 3 dose - Ped/Adol
104	90636	104	Hep A/Hep B - Adult
105	90632	52	Hep A 2 dose - Adult
106		102	DTP/Hib/Hep B
107	90633	85	Hep A--unspecified
108	90656	88	Influenza--unspecified
109	90633	31	Hepatitis A- pediatric, NOS
116	90680	116	Rotavirus, pentavalent
119	90680	119	Rotavirus, monovalent
200	67		PPD Positive Result
201	59		PPD Negative Result
202	90743	43	Hep B 2 dose - Adol/Adult
203	90723	110	DTaP/Hep B/IPV
204	90713	89	Polio - unspecified
205	90732	109	Pneumococcal - unspecified
206	90701	1	DTP - unspecified
207		75	Smallpox
208	90378	93	RSV-IgIM
209	90379	71	RSV-IGIV
210	90700	106	DTaP, 5 pertussis antigens
211	90393	79	VIG Vaccinia IG
212		105	Smallpox vaccine, diluted
213		999	Unknown vaccine or IG

SIIS Code	CPT	CVX	Description
214	15		Smallpox Major Take
215	108		Smallpox No Take
216	90703	110	Tetanus toxoids, adsorbed
217	90703	112	Tetanus toxoids, NOS
218	604		Smallpox Equivocal Take
219	39		Prev. Smallpox-Childhood
220	208		Prev. Smallpox-Recall Date
221	54		Prev. Smallpox-Documented Date
222	42		Diluent
223	30		Prev. Smallpox-Adulthood
224	30		Prev. Smallpox-Not Vaccinated/Unknown
300	90384		RhIG, full-dose, intramuscular
301	90385		RhIG, mini-dose, intramuscular
302	90386		RhIG, intravenous
400	90476	54	Adenovirus, type 4, live, oral
401	90477	55	Adenovirus, type 7, live, oral
500	90288		Botulism IG, human, intravenous
600	90700	107	DTaP--unspecified
601	90692	41	Typhoid, parenteral
602	90657	15	Influenza split, 6-35 mos.
603	90658	15	Influenza split, 36 mos. and older
604		91	Typhoid, NOS
605	90655	15	Influenza split,6-35 mos, presv free

SIIS Code	CPT	CVX	Description
606	90656	15	Influenza split, 36+ mos,presv free
607	90736	121	Zoster, live
608		122	Rotavirus, NOS
901	918		Doxycycline - Adult
902	921		Doxycycline - Ped, 0 - 10 lbs
903	116		Doxycycline - Ped, 11 - 25 lbs
904	926		Doxycycline - Ped, 26 - 50 lbs
905			Doxycycline - Ped, 50 - 75 lbs
910	119		Ciprofloxacin - Adult
911	920		Ciprofloxacin - Ped, 0 - 10 lbs
912	607		Ciprofloxacin - Ped, 11 - 20 lbs
913	608		Ciprofloxacin - Ped, 21 - 30 lbs
914	976		Ciprofloxacin - Ped, 31 - 40 lbs
915	923		Ciprofloxacin - Ped, 41 - 50 lbs
916		90	Rabies NOS
917	213		Botulinum Toxoid
918	90734	114	Meningococcal Conjugate (MCV4)
919		103	Meningococcal C Conjugate
920	90698	120	DTaP/Hib/IPV
921	90715	115	Tdap
922		108	Meningococcal, NOS
923	90633	923	Hep A 2 dose - Ped/Adol 12+ mos.
924	90656	15	Influenza Split, 18+ yrs, presv. free

SIIS Code	CPT	CVX	Description
925	90649	62	HPV, quadrivalent
926	90396	117	VZIG (IND)
927			Amoxicillin - Adult
928			Amoxicillin - Ped, 0 - 10 lbs
929			Amoxicillin - Ped, 11 - 20 lbs
930			Amoxicillin - Ped, 21 - 30 lbs
931			Amoxicillin - Ped, 31 - 40 lbs
932			Amoxicillin - Ped, 41 - 50 lbs
933			Amoxicillin - Ped, 51 - 60 lbs
934			Amoxicillin - Ped, 61 - 70 lbs
935			Amoxicillin - Ped, 71 - 80 lbs
936			Amoxicillin - Ped, 81 - 90 lbs
937			Septra - Adult
938			Septra - Ped, 0 - 10 lbs
939			Septra - Ped, 11 - 20 lbs
940			Septra - Ped, 21 - 30 lbs
941			Septra - Ped, 31 - 40 lbs
942			Septra - Ped, 41 - 50 lbs
943			Septra - Ped, 51 - 60 lbs
944			Septra - Ped, 61 - 70 lbs
945			Septra - Ped, 71 - 80 lbs
946			Septra - Ped, 81 - 90 lbs
947			Albuterol Metered Dose Inhaler 17 GM

SIIS Code	CPT	CVX	Description
948			Amoxicillin 200mg Chewable
949			Atrophine Sulfate 0.4MG/ML 20ML MDV for Injection
950			Bacitracin 500U/Polymixin B 10000U Ointment 0.9 GM Packets
951			Ciproflaxacin HCL 500MG Tablets 100 Tablets per unit
952			Ciproflaxacin HCL 500MG Tablets 20 Unit of Use (10-day regimen)
953			Ciproflaxacin HCL PO Suspension 250MG/5ML 100 ML Bottle
954			Ciproflaxacin IV 400MG/200ML DSW
955			Diazepan HCL 10MG Auto-injector CSIV
956			Diazepan HCL 10MG (5MG/ML) SDL for injection CSIV
957			Dopamine HCL 400MG (80MG/ML) Vial for injection
958			Doxycycline Hyclate 100MG Tablets 100 tables per unit
959			Doxycycline Hyclate 100MG Tablets 20 units of use
960			Doxycycline Hyclate 100MG Tablets 500 tablets per unit
961			Doxycycline Hyclate Suspension 25MG/5ML 60 ML Bottle
962			Doxycycline Hyclate 100MG Powder Vial for injection
963			Epinephrine HCL 1:1000 (0.1MG/ML) 10ML SYR/NDL for injection
964			Epinephrine 1:1000 (0.3MG/ML) Auto-injector
965			Epinephrine 1:2000 (0.15MG/ML) Auto-injector
966			Erythromycin Lactobionate 500MG Powder vial for injection
967			Gentamicin Sulfate 40MG/ML (20ML) MDV for injection
968			Lorazepam HCL 2MG/ML (1ML) 22G Needle Carpuject CSIV
969			Mark 1 (Pralidoxime 600MG/Atrophine 2MG)Auto-Injector
970			Methylprednisolone SOD SUC 125MG (2ML) Vial for Injection

SIIS Code	CPT	CVX	Description
971			Morphine Sulfate 10MG/ML 1ML 25G Needle Carpuject CSII
972			Providine Iodine 10% Swab Sticks Triples
973			Pralidoxime Hydrocholoride 1GM Powder Vial for Injection
974			DTaP/IPV
975			Td-IPV
976		123	Influenza, 1203

Table 8-12 VFC Codes

Code	SIIS Code	Description
V00		VFC eligibility not determined/unknown
V01		Not VFC eligible
V02	1	Medicaid
V03	2	Uninsured
V04	3	Nat. Amer. or Alaskan
V05	4	Underinsured
State-specific eligibility, depending on installation maps to one of these:		
V06	5	Default
	8	CHIP
Code	**SIIS Code**	**Description**
		VFC eligibility not determined/unknown

9.0 VFC and Lot Tracking

MIIX can track Vaccines for Children (VFC) immunization administrations and vaccine lot inventory for providers. The following information is required to support this functionality:

- Vaccine Lot Number
- Vaccine Manufacturer
- VFC Status (of patient at time of vaccine administration)
  - **OR** -
  Vaccine Publicly Supplied? (*Yes* or *No*)
- Facility/Clinic Id (if IRMS includes multiple Facility/Clinics)

VFC Status must be transmitted in an OBX segment. Here is an example of how this is sent:

***Figure 9-1**: VFC Status OBX Segment Example*

```
OBX|0|ST|VFC-STATUS^VFC STATUS^STC||V01||||||F|||20051101
```

Vaccine Publicly Supplied must be transmitted in an OBX segment. Here is an example of how this is sent:

***Figure 9-2**: Vaccine Publicly Supplied OBX Segment Example*

```
OBX|0|ST|30963-3^Vaccine purchased with^LN||Y||||||F|||20051101
```

The HL7 interface must be configured to "Track Lot Inventory" before submitting data. Currently configured Vaccine Lots will be decremented if they match the incoming vaccine code *exactly*. If the lot number is sent with a typo or the VFC status is incorrect, then the correct lot may not be decremented and no error message will be displayed. It is important to correctly configure the current lots and to transmit the vaccines given without typos.

In addition, as lots may be tracked separately for each facility the facility MUST be designated if lots are defined by facility.

10.0 Resources

This immunization registry conforms to standards published by the CDC. For the latest code sets and standards please see:

http://www.cdc.gov/vaccines/programs/iis/stds/standards.htm

For more detailed information about how IWeb processes HL7 data please see the *IWeb HL7 Interface Specification Guide.*